

May 25, 2000

To: 2000 Board of Assessors
From: Alton Dahl

Relative Land Valuation as the basis for Apportioning Land Rent in Arden

The system for evaluating relative value of individual lots in Arden for the purpose of setting land rents should not be looked on as a series of completely independent decisions but rather as a series of interlocking decisions. The system does not evaluate each lot directly but creates a mathematical model for land value based on the dominant variables that affect it. If the variables are easily measured, then the land rent is easily calculated. The system developed over more than the last thirty years has made this evaluation based on formulas that take into account the following variables (All easily measured):

- Size
- Special Privileges associated with individual lots but not others
- Location

These variables allow the Assessors to determine relative assessments of land rent for all lots.

Although the variables stated above have been used for many years, the way each has been evaluated has varied with changes in the situation from year to year; e.g. when Harvey Road had little traffic it had little impact on land value, but when the traffic became intense it had a significant negative impact. Similarly, when some roads were paved and others were gravel that made a difference in land value. Assessors have placed varying importance on a lot being adjacent to the forest as they perceived increased desire for such lots.

This system is designed to be equitable; land rent is based on land value. In that sense it is fair. It is not necessarily fair in some other senses we might wish – ability to pay, relationship to a tax bill outside Arden, etc.

Size

The variable “size” is used in determining lot value. We do not evaluate any single square foot, since none are available, but rather the value of the lot as a whole. However, we set up formulas using square feet as a variable to calculate the lot’s value. Three studies have been made by Assessors in the past to develop the formulas for treating the relative impact of size on lot value.

They are listed below:

<u>Study</u>	Lot Size in Square Feet		
	<u>10,000</u>	<u>20,000</u>	<u>30,000</u>
Van Dreele 1973 Analysis of New Castle Co Land Assessment	1.0	1.45	1.9
Realty Appraisals Corp. 1987 Nickel and Barczewski At the request of Mike Curtis	1.0	-	1.6
Gladstone 1987 Based on 1983 NCC Assessment	1.0	1.5	2.0
<u>Comparison</u> 2000 Land Rents	1.0	1.51	2.04

Since these are only relative values the data are all normalized so that a ten thousand square foot lot has a value of 1.0 and the other sizes are shown as factors of that.

Of these studies the Nickel and Barczewski study in 1987 was done entirely on properties outside of Arden based on actual sales data. The character of these data is consistent with other results from the US.

These data are adequately represented by the simple equation:

$$\text{Value} = a + b \times \text{Size}.$$

For example, the results of the historical land rent formula for dealing with size of lots,

$$\text{Land Rent} = [6500 + (\text{Area} - 6500 \text{ sq ft}) \times 40\%] \times \text{Rate A}$$

are included on the last line. It is clear from this comparison that previous Boards of Assessors have used a formula that agrees with the largest charge for large lots consistent with the data and quite a bit larger than the professional study.

Privileges

Two privileges have been recognized as coming with certain lots and not with others. They are commercial privileges and multiple domicile privileges. These privileges are not permanent (e.g. through changes in the law, destruction of the domicile, or simply giving up the privilege), and thereby their value is somewhat diminished, but certainly not negligible in determining lot value. The privileges are transferable and clearly affect the amount a buyer of the property would be willing to pay.

The concept of land rent being based on the privilege of multiple domiciles was tested in the Court of Common Pleas in the case *Ardencroft v. Bernard Troyan*, Civil Action 93-10-1977. The opinion written by Judge Arthur F. Disabatino found that the factor used by Ardencroft to determine the increase in land rent for multiple domiciles was not in accord with Georgist principals and forced the Village to discontinue the practice completely.

Arden Assessors and Trustees have concluded that our system of evaluating land based on the number of domiciles avoids the pitfall of the Ardencroft case, but the opinion is stated quite broadly and would certainly be cited as a precedent in any future suit against Arden. The key to our system is that we are setting up formulas to evaluate the value of land based on its characteristics; we are not charging anyone for what they do or don't do on their lot. We reevaluate each characteristic frequently to see if any of them may have changed since the previous year.

Any change in the system that has the effect, even if not the intent, of being a flat charge on a rental unit will likely fail Judge Disabatino's proscription (page 6, paragraph 3).

This court opinion was included in the package I distributed at the beginning of our term. I would encourage everyone to read it carefully before proposing changes.

Relationship between Size and Domicile

The formula for valuing lots of various sizes is derived from market data and does not assign any particular meaning to the constants. However, by associating the first 6500 sq ft with the first domicile (every lot in Arden has 6,500 sq ft) it is an easy extension to associate an additional 6500 sq ft with each additional domicile and then to assign a somewhat lower rate (Rate B) for each of those. The fact that a few lots have domiciles in excess of this formula is an indication that we are not falling under Judge Disabitino's proscription of just charging the leaseholder for operating a rental property. The formula then becomes:

$$\begin{array}{ll} \text{Land Rent} = & \\ 6500 \times \text{Rate A} & \text{charge for first domicile} \\ + (n-1) \times 6500 \times 80\% \times \text{Rate A} & \text{lower charge for additional domiciles} \\ + (\text{Area} - n \times 6500 \text{ sq ft}) \times 40\% \times \text{Rate A}, & \text{charge for rest of the land} \end{array}$$

with the proviso that the formula stops being applied when the land used up.

Location (No examples given here)

Various location factors have been used over the years. For the last several years the factors used have been:

- Adjacent to a forest
- Adjacent to a green
- Adjacent to Harvey or Marsh Roads

Each of these location situations have been assigned a percentage factor and applied to the Land Rent after the size and privileges formulas were evaluated.

Data Charts and Tables

Table I – Relative Land Values vs Lot Size

The best data we have on appraisals of land in Arden to determine the value of different size lots is shown in Table I with comparisons to this year's data and several hypothetical cases related to our discussions. All the cases shown in the table generate the same amount of total land rent.

Chart 1 - 2000 Land Rent vs Size

Chart 1 shows the current land rent charged each leasehold as a function of size. All other factors, such as domiciles, forest, greens and road factors have been eliminated to show just the effect of size. The numbers used are from the land rent due March 2000. The formula used is

$$\text{Land Rent} = 6500 \times \$143 / 1000 \text{ sq ft} + (\text{Area} - 6500 \text{ sq ft}) \times 80\% \times \$143 / 1000 \text{ sq ft}$$

Chart 2 - Comparison of 2000 Rate and Appraisal

The three cases displayed on this chart show the effect of the two different appraisal ratios from Table I (2 to 1 and 1.6 to 1), and are compared to a flat rate case (3 to 1). The 2 to 1 case is that used by past boards of assessors. The 1.6 to 1 case is the one based on sales data.

Chart 3 – Land Rents with Domiciles

This chart shows the effect of adding the domicile data to the size calculation. Numbers for this calculation are from the rents due March 2000. Obviously those lots with multiple domiciles show an increase in land rent reflecting the increase in value of those lots.

Chart 4 – Effect of Changing to 10,000 sq ft Domicile

Chart 4 shows the results for each lot of changing the domicile size from 6500 sq ft to 10,000 sq ft while changing Rate A to generate the same total income. Perhaps this is the data which caused Jim to say that the effect of such changes were not always intuitive. The change reduces the rent for smaller multiple domicile lots and for large lots.

Chart 5 – Effect of Changing to 10,000 and 50%

In this chart I have shown the result of a combination of changing the domicile size to 10,000 and increasing Rate C from 40% to 50%. The net effect is still to reduce rent for multiple domicile lots.

Table I
Relative Land Value vs Lot Size

<u>Study</u>	<u>Lot Size in Square Feet</u>		
	<u>10,000</u>	<u>20,000</u>	<u>30,000</u>
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Realty Appraisals Corp. 1987 Nickel and Barczewski At the request of Mike Curtis	1.0	-	1.6
Gladstone 1987 Based on 1983 NCC Apraisal	1.0	1.5	2.0
<u>Rental formulas*</u>			
All cases give the same total rent.			
2000 Land Rents			
6.5K, \$143, 40%	1.0	1.51	2.04
6.5K \$175, 23%	1.0	1.31	1.62
10K, \$130, 30%	1.0	1.30	1.60
10K, \$121, 40%	1.0	1.41	1.82
10K, \$114, 50%	1.0	1.50	2.00
Single Rate \$87	1.0	2.00	3.00

* Each case is designated as follows: Domicile Size, Rate A, Rate C (as per cent of Rate A)
Rate B did not enter into the calculation.